

This article was downloaded by:

On: 30 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

Synthesis and Reactions of a Diarylphospha-arsaalkene

C. N. Smit^a; M. Nemansky^a; F. Bickelhaupt^a

^a Scheikundig Laboratorium, Vrije Universiteit, Amsterdam, The Netherlands

To cite this Article Smit, C. N. , Nemansky, M. and Bickelhaupt, F.(1987) 'Synthesis and Reactions of a Diarylphospha-arsaalkene', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 30: 3, 806

To link to this Article: DOI: 10.1080/03086648708079298

URL: <http://dx.doi.org/10.1080/03086648708079298>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

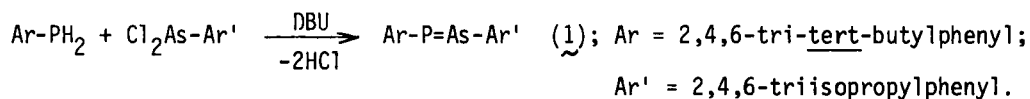
This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Synthesis and Reactions of a Diarylphospha-arsaalkene

C. N. Smit*, M. Nemansky, and F. Bickelhaupt
Scheikundig Laboratorium, Vrije Universiteit
De Boelelaan 1083, 1081 HV Amsterdam, The Netherlands

Only a few representatives of the class of phospharsaalkenes $R-P=As-R'$ have been described in the literature. We have synthesized P -2,4,6-tri-tert-butylphenyl- As -2,4,6-triisopropylphenylphospharsaethene (1) by the following route:



The easy accessibility of this crystalline, orange-coloured, air- and water-stable compound enabled us to make a detailed investigation of its properties and chemical reactivity.

The ^{31}P NMR spectrum ($\delta = 580$ ppm) and the mass spectrum characterize 1 as a genuine, monomeric phospharsaalkene. In spite of its stability, 1 could be reacted with CCl_4 , Br_2 , S , and Se to give $Ar-P(Cl)_2=As-Ar'$, $Ar-PBr_2$, and $Ar-P-As(Ar')X$ ($X = S$ or Se), respectively. Quite unexpected was the reaction of 1 with 3,5-di-tert-butylorthoquinone (2) which led not to the expected cycloaddition product 3, but to 4 and 5; further reaction of 4 with 2 gave Yoshifuji's $Ar-P=P-Ar$ and 5. A mechanism for this interesting mechanism will be proposed.

